Chapter 2

Air Quality, The Clean Air Act Amendments, and ISTEA

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Background

The Clean Air Act Amendments of 1990 (CAAA) and the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) have combined to alter the environment in which transportation and air quality decisions are made throughout the nation and Indiana. Federal, state, and local decisionmakers must now respond to a wide range of new regulations, requirements, and processes for transportation system planning, development, and management. Given the magnitude of change brought about by these two Acts, it is critical that transportation officials understand several key elements of the new transportation/air quality setting. These elements include the following:

- The State Implementation Plans (SIP) process has a great impact on transportation, both through the establishment of emissions budgets and through the development of control strategies to reduce emissions. SIPs are plans at both the urbanized area and State level that are designed to achieve improved air quality and federally mandated controls and regulations.

  The new conformity regulations place stronger constraints on transportation plans, programs, and projects, making it imperative that transportation planners work closely with air quality planners.

- The CAAA has linked transportation to air quality actions--even actions directed at issues not related to mobile sources--since failure to meet the requirements of the act can lead to a cutoff of highway funds.

- Specific requirements in the CAAA are aimed at transportation directly, including measures to reduce emissions through technological improvements. Improvements may include (1) enhanced vehicle inspection and maintenance, (2) reformulated fuels, (3) alternative fuel vehicles, and (4) transportation control measures (TCMs) such as, the employee commute option program in certain urbanized areas.

- ISTEA funding is available to for projects that benefit air quality through the Congestion Mitigation and Air Quality Improvement (CMAQ) Program.

The CAAA and ISTEA have combined to produce an unprecedented period of change in the transportation community. The two acts and associated regulations emphasize the links between transportation policy and air quality concerns through (1) incentives to make investments that promote air quality and, (2) regulatory restrictions on transportation decisions in areas that fail to meet national ambient air quality standards. As a result, transportation decisionmakers face fundamental changes in what transportation services and facilities they provide, how decisions are made, and who influences these decisions.

Transportation services and projects must play a major role in the effort to reduce emissions under the CAAA. In air quality "non-attainment" areas, transportation decisions may be shaped largely by the new CAAA requirements, including specific measures to reduce emissions of several pollutants associated with mobile sources. Several pollutants associated with mobile sources include volatile organic compounds (VOC), nitrogen oxides (NO_x), carbon monoxide (CO), and particulate matter (PM_{10}).

In addition, the new conformity regulations affect transportation planning in several critical ways. Specifically:

- States and Metropolitan Planning Organizations (MPOs) must show that Transportation Plans and Transportation Improvements Programs result in emissions levels that fall within the "emissions budget" for mobile sources specified in each non-attainment/maintenance SIP.

- Transportation Control Measures (TCMs) contained in the SIP must be included in Transportation Plans and Transportation Improvement Programs.

- During an interim period, many areas must show reductions in emissions of key pollutants, notably NO_x and VOC, for new projects in the "build" scenario compared with the "no-build" scenario, and show that emissions are lower than 1990 levels.

Failure to meet the conformity requirements can result in the expiration of the Transportation Plan and the Transportation Improvement Program (TIP) and thus the federal transportation funding for many projects. In addition, transportation may be affected by a state's or urban area's inability to meet any of the CAAA requirements--whether or not the lack of compliance is related to transportation measures. Failure to obtain a required SIP revision approval (even if that SIP revision relates to a non-transportation issue) can result in the loss of federal transportation funds.

In order to address the new clean air challenges successfully, it is crucial that transportation officials become involved in air quality early in the planning process. Transportation officials need to be actively involved in the various SIP processes, particularly in the establishment of emissions budgets, which become key constraints on future transportation plans and programs.

In addition, transportation planners need to incorporate a range of current and new players into the decision-making process, including the Environmental Protection Agency (EPA), the Indiana Department of Environmental Management (IDEM), special interest groups, and the general public. Cooperation between all these groups is essential if Indiana is to comply with ISTEA and CAAA air quality requirements.

Congestion Mitigation and Air Quality Program

One important element of ISTEA is the Congestion Mitigation and Air Quality Program known as CMAQ. Congress allocated $6.0 billion nationally for the CMAQ program to be used over the life of ISTEA to fund TCMs or other programs designed to implement an urbanized area's transportation/air quality plan. The CMAQ program was established to assist in achieving attainment. Several states and MPOs are using CMAQ funds to support the implementation of vehicle inspection/maintenance (I/M) programs. Others are using these funds to support projects that improve intermodal freight distribution activities that are justified by air quality benefits.

CMAQ projects are usually classified in one of several categories noted below:

- Transit improvements;
- Shared ride services;
- Traffic flow improvements;
- Demand management strategies;
- Pedestrian and bicycle programs;

- Vehicle inspection/maintenance (I/M) programs;
- Conversion of public fleets to alternative fuels, and;
- Public education and outreach programs.

Indiana's Policy on the Congestion Mitigation and Air Quality Improvement Program

INDOT has developed a document that establishes a policy by which the CMAQ Program will be administered in the State of Indiana. It is applicable to projects proposed in non-attainment areas by either the Metropolitan Planning Organizations (MPOs) or the State of Indiana. The Indiana CMAQ policy incorporates many aspects of the joint Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) guidance of October 16, 1992, and April 9, 1993, on the CMAQ program. The federal guidance is included in this policy as an ongoing source of reference. The policy also contains other elements that may be considered unique to Indiana.

Included in this policy are sections relating to: (1) the formula for suballocating funds to Indiana's non-attainment areas; (2) eligible projects; (3) project selection criteria, and; (4) the project development and submittal process. It is the intent of this policy that the parties governed by it, INDOT, the Indiana Department of Environmental Management (IDEM) and the MPOs, have equal status and that each will work in a cooperative spirit with the other toward meeting the objectives of this policy, ISTEA and the CAAA. Thus, the identification, development, selection and implementation of projects and programs for CMAQ funding will be jointly carried out by INDOT, IDEM and the MPO representing the non-attainment area in which the project or program is proposed, whether state or MPO sponsored.

Non-Attainment Area Classifications

Non-attainment areas in Indiana fall within one of three (3) classifications; marginal, moderate, or severe. Each non-attainment area classification has an associated definition and mandatory transportation provisions. The transportation provisions of the Clean Air Act as amended in 1990 for non-attainment area classifications are identified in Table 1.

Table 1

Transportation Provisions of the Clean Air Act As Amended In 1990
For Ozone Non-Attainment Area Classifications

Marginal

- These areas exceed the ozone standard of 0.12 parts per million (ppm) by 15 percent or less (0.121 ppm up to 0.138 ppm), and are required to attain the standard within three years of enactment, specifically November 15, 1993.
- Emission inventories are completed and approved. Revised emission inventories are required at the end of each three year period until attainment.
- These areas must correct existing or previously required inspection/maintenance (I/M) programs.
- These areas will be reclassified as moderate non-attainment areas if they fail to attain the standard by the deadline, plus up to two (2) one-year extensions.

Moderate

- These areas exceed the standard by 15 percent to 33 percent (0.138 ppm to 0.160 ppm), and are required to attain the standard in six years, specifically November 15, 1996. Moderate areas must meet marginal requirements.
- In addition to meeting marginal area requirements, moderate areas have submitted SIP revisions demonstrating volatile organic compound (VOC) reductions, and a 15 percent reduction from 1990 baseline emissions, while accounting for any growth in emissions after enactment. Additional requirements for major NOx sources apply in certain areas.
- Contingency measures to be implemented if the area fails to make reasonable further progress or attain the National Ambient Air Quality Standard (NAAQS) by the attainment date; these measures are to be included in the SIP and are to take effect without further action by the State or EPA.
- These areas must adopt basic I/M programs.
- These areas will be reclassified as a serious non-attainment area if they fail to attain the standard by the deadline, plus up to two (2) one-year available extensions.

Table 1 (Continued)
Transportation Provisions of the Clean Air Act As Amended In 1990
For Ozone Non-Attainment Area Classifications

Severe

- These areas exceed the standard by 50 to 133 percent. Areas with design values from 0.189 ppm to 0.280 ppm are required to attain the standards in seventeen (17) years, specifically November 15, 2007.
- These areas have submitted SIP revisions that identified and adopted TCMs to offset growth in emissions from growth in trips or vehicle miles of travel.
- Besides meeting moderate area requirements, these areas have to submit SIP revisions within four (4) years of the CAAA that demonstrate VOC reductions that average 3 percent per year each consecutive three-year period beginning six years after enactment.
- These areas submitted SIP revisions establishing clean-fuel vehicle programs, mandating that certain percentages of new fleet vehicles be clean-fuel vehicles and use clean fuels within the non-attainment area, including measures to make the use of clean alternative fuels economical to clean-fuel vehicle owners.
- Beginning six (6) years after enactment and each three-year period thereafter, the State has to submit a demonstration as to whether vehicle emissions, congestion levels, vehicle miles of travel, and other relevant parameters are consistent with those used in the SIP; if not, the State has eighteen (18) months to submit SIP revisions that include transportation control measures (TCMs) to reduce emissions to levels consistent with SIP levels.
- The SIP shall provide for implementation of specific measures to be undertaken if the area fails to meet any applicable milestone.
- These areas must adopt enhanced I/M programs.
- SIP revisions were submitted requiring employers of 100 or more to increase the average passenger occupancy per vehicle for work trips by not less than 25 percent above the average for all work trips in the area. The affected employers have to submit compliance demonstrating compliance.
- Severe areas that fail to attain the standard by the deadline are subject to mandatory fees on stationary emission sources and the more stringent new source review requirements applicable to extreme areas.

Source: Clean Air Act Amendments of 1990.

Indiana Air Quality Non-Attainment Areas and CAAA Requirements

Indiana currently has five (5) air quality non-attainment areas that must meet Clean Air Act Amendment (CAAA) Requirements. Currently three (3) of these non-attainment areas, the Marion County/Indianapolis Urbanized Area, the St. Joseph and Elkhart Counties/South Bend and Elkhart Urbanized Area, and the Vanderburgh County/Evansville Urbanized Area fall under the definition of marginal areas.

As previously noted in Table 1, marginal areas exceed the ozone standard of 0.121 ppm up to 0.138 ppm and are required to achieve an Attainment Date of November 15, 1993. All three of these areas have requested from the U.S. Environmental Protection Agency (EPA) redesignation to attainment status. That process is currently underway. Under CAAA Requirements, these urbanized areas must have:

- Transportation Conformity, and;
- Contingency Measures as part of Maintenance Plans.

Indiana's fourth air quality non-attainment area that must meet Clean Air Act Amendment (CAAA) Requirements includes Clark and Floyd Counties, Indiana/Louisville Urbanized Area. This area is currently classified as moderate non-attainment since it exceeds the ozone standard of 0.138 ppm up to 0.160 ppm and an Attainment Date of November 15, 1996. Under CAAA Requirements, Clark and Floyd Counties, Indiana/Louisville Urbanized area must have:

- Transportation Conformity;
- Volatile Organic Compound Reduction Plan;
- Inspection and Maintenance, and;
- Attainment Demonstration and Maintenance Plan.

Indiana's fifth and final air quality non-attainment area that must meet Clean Air Act Amendment (CAAA) Requirements includes the Lake and Porter Counties, Indiana/Northwest Indiana-Chicago Urbanized Area

This area is currently classified as a Severe (2) Area since it exceeds the ozone standard of 0.190 ppm up to 0.280 ppm. The Attainment Date for this area is November 15, 2007. Under current CAAA Requirements, the Lake and Porter Counties, Indiana/Northwest Indiana-Chicago Urbanized Area must have:

- Transportation Conformity;
- Reduction of Vehicle Miles Traveled;

- Clean Fueled Fleet Rule;
- Reformulated Gasoline;
- Employee Commute Option Program;
- Volatile Organic Compound Reduction Plan;
- Volatile Organic Compound Reduction Plan;
- Stage II Vapor Recovery;
- Enhanced Inspection and Maintenance, and;
- Attainment Demonstration and Maintenance Plan.

Summary Conclusions

The Indiana Department of Transportation faces many challenges in successfully meeting the transportation needs of the State of Indiana while achieving air quality goals. A multimodal transportation planning process focused on adherence to the provisions of ISTEA and the CAAA while providing for and maintaining the state's transportation infrastructure can provide unprecedented flexibility in selecting the best mix of projects to meet current and future needs.